

contacting a gene with a probe to generate an electrochemical response; and
detecting the electrochemical response

wherein the probe comprises a cyclic ligand containing ^a_A ferrocenyl group and a DNA
threading intercalating moiety.

A² 2. (New) A device for detecting a highly ordered structural site of a nucleic
acid of a gene using a probe, the device comprising:

- a container,
- a solution for dissolving the probe, the solution being held in the container,
- a working electrode modified with a gene, the working electrode dipped in the
solution in the container, and
- a counter electrode dipped in the solution in the container

wherein the probe comprises a cyclic ligand containing ^a_A ferrocenyl group and a DNA
threading intercalating moiety.

A² 3. (New) A method for detecting a highly ordered structural site of a nucleic
acid of a gene, the method comprising:

- contacting a gene with a probe to generate an electrochemical response; and
- detecting the electrochemical response

wherein the probe comprises a cyclic ligand containing ^a ferrocenyl group and a DNA threading intercalating moiety wherein the cyclic ligand further comprises two linker moieties each having two terminal amino groups, ^{and wherein} ^{is} each linker moiety being connected with the DNA threading intercalating moiety through one of said terminal amino groups, and ^{is} each linker moiety being connected with the ferrocenyl group through the other of said terminal amino groups.

A²
4 19. (New) A device for detecting a highly ordered structural site of a nucleic acid of a gene using a probe, the device comprising:

a container,
a solution for dissolving the probe, the solution being held in the container,
a working electrode modified with a gene, the working electrode dipped in the solution in the container, and

a counter electrode dipped in the solution in the container

wherein the probe comprises a cyclic ligand containing ^a ferrocenyl group and a DNA threading intercalating moiety wherein the cyclic ligand further comprises two linker moieties each having two terminal amino groups, ^{and wherein} ^{is} each linker moiety being connected with the DNA threading intercalating moiety through one of said terminal amino groups, and

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A2 each linker moiety ^{is} being connected with the ferrocenyl group through the other of said terminal amino groups.

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